Education, Microfinance, and Poverty in Philippines

Benjamin Drean
Lycée George Sand, EPL du Velay, France

Abstract : This study investigates education, microfinance, and poverty in Philippines using the vector error correction model (VECM) method. The test results of macroeconomic variables and bank-specific factors for Non-Performing Loans (NPLs) in Philippines use VECM. Provides results that the NPL variable provides a positive and significant response to credit increases in the short and long term. This means that high and low credit levels lead to high and low NPL levels. The inflation variable used as a macroeconomic indicator has different effects on the NPL level in the short and long term. In the short term, the inflation variable is detrimental to the NPL level. This means that the increase in the inflation rate does not affect the NPL level. Meanwhile, in the long term, inflation has a positive and significant effect on the NPL level. That is, an increase in the inflation rate increases the NPL level. Inflation that increases this increase is caused by government policies that increase the price of goods which causes prices to rise as well. Then this can affect people's purchasing power so that the business world weakens. Resulting in hampered credit.

Keywords: VECM, Microfinance, Education, Poverty

JEL Classification : A2,M12,M2

1 INTRODUCTION

Education and human capital are two things that influence each other. Education is a process in building and developing human capital. And education also requires human capital in developing the education system. Education becomes a humane process that increases intelligence, knowledge, skills, and development in the ability to develop and master technology. Education cannot be separated from human capital and human capital cannot be separated from humans. Human capital is an important factor in improving performance and having an impact on income(Widarni & Bawono,2020). This of course becomes one of the ways in breaking the chain of poverty. Poverty is a problem characterized by various factors, including the low quality of life of the population, limited adequacy and quality of food, limited and low quality of health services, child nutrition, and low quality of education services.

Poverty is complex, meaning that poverty does not appear suddenly, but has a long and complicated background so that it is very difficult to know the root of the poverty problem itself, while poverty is multidimensional, meaning that seeing from the many diverse human needs, poverty also has Primary aspects are poverty in the form of assets, socio-political organization, knowledge and skills, and secondary assets in the form of poverty in social networks, financial resources, and information.

Poverty and health have an unbroken chain. Poverty makes it difficult to get high quality and nutritious food. Poverty will corner a person or community to a bad environment and low knowledge of health. Generally, those who are caught in poverty have a bad lifestyle and are susceptible to disease. And due to poverty, they cannot pay for care and medical expenses when they fall ill. Collaboration of poverty and pain, makes life just like waiting for death to come. Meanwhile, for people with a good health level, it will lower the poverty rate. Because healthy people can be more productive, lower costs for treatment (can be substituted for other needs), have better access to medical information and knowledge, more positive lifestyles, higher life span, and lower mortality rates.

Improving health services for the poor is an impetus for accelerating poverty reduction. The delivery of health services for the poor has an important meaning. Because good health will encourage people to be more productive. Of course, in addition to health, so that humans can be productive, their knowledge and skills need to be improved so that they can be productive and increase income so that they are able to get out of poverty. In this perspective, the state has an obligation to provide educational services for every citizen, at least for basic education. Economic problems are the main factor that causes low educational participation and high dropout rates among the poor. They do not have sufficient funds to send their children to school, because education does require a relatively large amount of money. Poor families will lose their source of income if their children go to school. There was a forgone earning, namely the value of income (money) that might be obtained by hiring children, but lost because they had to go to school(Salvadori,et al.,2014).

School-age residents need good and quality educational services in order to survive in living life in the future. Second, basic education is the foundation framework for further education to lay the groundwork for further education. Basic education makes a very large contribution, even decisive, in preparing children to develop all their potential and abilities to attend education at the next level. Improving further education services, especially senior high schools, must also be an urgent national agenda. By building a solid educational foundation, it is hoped that it can produce quality human resources so that by building a solid educational foundation it is hoped that it can produce quality human resources, so as to help solve the nation's main problems. This is because education can be a strong foundation for the two main pillars of poverty alleviation, namely: 1) sustainable economic growth that is pro-poor, and 2) social development oriented towards the welfare of the community. Economic growth requires and must be supported by an educated workforce, who has knowledge and skills, and masters technology to increase productivity. Social development can only work well if it focuses on human investment which includes education, health, and nutrition, which are the main elements in building a prosperous society. We all realize how poverty is an acute problem, which requires serious, planned, and long-term efforts. long to solve it. Education is believed to be the most effective means of breaking the chain of poverty. Because education provides knowledge and skills for every member of the community to be able to improve their quality of life. The state must be able to provide educational services to every citizen equally and fairly. If not, the Philippinesn nation will face a social catastrophe that makes people's lives far from prosperous. The concept of the role of education in poverty alleviation efforts is not merely an issue but can directly serve as a force to reduce the amount of poverty that is currently congested. Therefore, the right program perspective is to develop pillars of strengthening programs for poverty alleviation activities that rely on the important role of education as the main pillar of development. The concrete concept that can be realized is to expand access, increase education equity and improve the quality of education itself so that the existence of a program in a sustainable manner can alleviate and reduce poverty gradually (Li,et al.,2016).This context proves that education is a medium for efforts to overcome poverty problems. The government needs to continue to strive to increase equity and expand access to education that focuses on basic education. This is believed to be a knot to reduce the tangled threads of the poverty problem.In an area where the population lives below the poverty line, it is certain that education in that area is neglected. Of course, we can argue that education is not the only factor causing poverty. There are economic, political, and socio-cultural factors that cannot be ruled out. Even so, it is difficult for us to evade because only education is a rational answer that we can accept to break the chain of poverty.

One of the main causes of the high poverty rate in Philippines is the existence of structural societies (people who find it difficult to change their lives through education). Of course, we can understand the strong influence of local wisdom and theology which embraces the thinking of structural (traditional) societies.The poverty chain problem ensnares people to work in a structured manner. This means that there is a situation when a person cannot escape from the life-long trap of poverty. One of the goals of development is to reduce poverty. Poverty is a complex problem that is influenced by various interrelated factors, including income level, education, access to goods and services, geographic location, gender, and environmental conditions. The correlation between education and poverty has long been a central issue in many countries. developed and developing countries. Even in developed countries such as the United States, problems arise as a result of the large subsidies allocated to the poor. Meanwhile, in Philippines, the problem lies in the injustice in gaining access to education between the rich and the poor. Where the costs for schools for the rich and the poor are relatively the same regardless of their family's economic background. Education is the basic capital for the development of Human Resources (HR). One important index in calculating the Human Development Index (HDI) is the Education Index. With adequate education, national development will be easily achieved as planned. It is hoped that education will be able to answer the problems of poverty, low productivity, and also slow economic growth. Education is a long-term investment that must be continuously nurtured and maintained (upgraded). The education index becomes one of the indexes in calculating the Human Development Index (IPM). To increase the HDI in an area, it is necessary to increase the Health Index or the Education Index, or the Purchasing Power Index. With higher education, the HDI of a region will be higher as well. Poverty is a term related to a relative or absolute meaning. A person or family is considered poor or living in poverty if their income or access to goods and services is relatively low compared to other people in the economy. Poverty can also be seen as some absolute level of income or standard of living, usually at or near the minimum subsistence level. Poverty can close one's access to progress, including one of the opportunities to get decent and quality education for the future. The correlation between education and poverty has long been a central issue in many countries, both developed and developing countries. The problem arises as a result of the large subsidies allocated to the poor. Improving and increasing access to free education is one of the keys to overcoming this complex problem of education and poverty. Poverty caused by low productivity can be overcome with intervention policies aimed at increasing income in the form of Productivity improvement programs, meanwhile, can overcome vulnerability in the income of the poor by short-term social safety net policies in the form of cash or food, efforts to improve the income system, or create income-generating opportunities (Witt & Redding,2014).

The micro-credit program is one of the government's efforts to provide small loans or other financial services to poor people who are difficult to get services in banking so that they can generate income to increase their standard of living. The hope is that the existence of the micro-credit program policy will increase people's income, so it will be followed by an increase in children's education expenditures in households that receive the micro-credit program. Microfinance is an evolutionary result of micro credit, which is a credit service intended for the poor. This is of course a financial service that aims to help people who are below the poverty line to get decent financial services (Ali, 2013). Microfinance not only provides services but also a variety of other financial services for the poor, such as micro insurance, savings and money transfers. The concept and development of microfinance as an effort to alleviate poverty is accepted by many parties, such as the government, non-profit charities, and the community.

Microfinance in Philippines has developed quite well with government programs such as small business credit services and small business capital assistance programs. This program is very helpful for micro and small entrepreneurs to develop through business credit programs with very low interest rates (Schmidt, et al., 2016).

Poverty alleviation efforts certainly require comprehensive handling. Theoretically, in human capital theory, education is an important factor in improving human performance which has an impact on increasing income. So that in addition to microfinance services, poverty alleviation efforts need to be balanced with affordable education services for the poor with good quality (Gonulal, 2012).

Microfinance programs can help poor people increase their income through venture capital and social assistance programs, and other services that help poor people get out of poverty and get what they need. As the foundation of human resources, education provides knowledge, insight, skills and experience to maximize the potential for increasing income. Microfinance programs can help the poor get good education services, good health services, get enough food, and other basic needs to become healthier, smarter and more productive and gain access to capital to develop micro and medium enterprises, including small-scale agricultural programs. These things form economic sustainability that encourages the poor to be more productive, strengthened by good and affordable education services that can become a comprehensive poverty alleviation program (Heshmati, et al., 2015).

2 LITERATURE REVIEW

Economic growth is one measure of a country's success. Economic growth will be influenced by several factors, including labor, capital, and technological advances. Labor that affects economic growth is in terms of quantity (quantity) and quality. The quality of the workforce will be influenced by several things, including education and health. Among these various aspects, education is considered to have the most important role in determining human quality. The implication is that the higher the education, the more quality human life will be. In relation to the national economy, the higher the quality of life of a nation, the higher the level of growth and national welfare. The higher the education level of the workforce, the higher the productivity so that the higher the economic growth of a country. . The higher a person's education, it is expected that the supply of human resources will be higher. Because human capital has a positive relationship with economic growth, the implication is that education also has a positive relationship with productivity or economic growth. The human capital theory explains the process by which education has a positive influence on economic growth. Population with higher education which is also measured by the length of schooling will have better jobs and wages than those with less education. If wages reflect productivity, the more educated the population will be, the higher the productivity will be so that the results of the national economy will be higher. The concept of education as an investment which is described as an intervention of economic power (education as an investment) has developed rapidly and it is increasingly believed by every country that the development of the education sector is the main prerequisite for the growth of other developments. sector. The concept of human capital investment that can support economic growth must also be built and developed from economic structures and systems that support the birth of quality education. Education makes a significant contribution to economic development, this has become an absolute and axiomatic justification. Economic development is always influenced by the contribution of education as stated in human capital theory. This contribution can be achieved by increasing skills and work productivity. The rapid economic growth in Asian countries and the progressive shift in production towards high-tech industries and services have resulted in an increasing demand for the business world for the need for skilled and educated human resources (Widarni & Bawono,2020).

To improve education, microfinance can act as a bridge in helping the poor obtain credit to finance education and/or as other productive capital.Micro finance helps the poor in meeting their needs for financial services so that they can get added economic value from the impact of development and gain access to finance to meet their life needs and investment so as to improve welfare and ultimately reduce poverty.Micro finance services can reach out to remote villages and use internet technology to reach groups that have difficulty obtaining access to financial services so that they can help these groups of people in obtaining the financial services needed to help meet their life needs and investment needs for both human capital investors such as education. and training and other than that.Microfinance services are the development of microcredit services that aim to help the poor free from the bonds of moneylenders who provide loans with very high-interest rates. Of course, poor people with limited financial access need financial services that help them meet their needs and develop their capital in healthy investments, including education and health investments that can help them become more productive. Microfinance services support the financial needs of the poor, such as remittance services, insurance, and savings, which provide opportunities and assistance for the poor to get a decent life and help them move out of poverty (Ledgerwood, et al., 2013).

Microfinance services encourage the poor to be more creative and productive. Providing capital assistance to the poor provides opportunities for the poor to develop businesses by increasing community creativity. In this case, education plays an important role in educating and encouraging people to be more productive, especially the poor. Increasing productivity to increase income will help alleviate poverty through a process of empowerment and independence (Sendjaya, 2019).

Microfinance can provide savings services that are easily accessible to the community so that they can help people save part of their income, which can be used for long-term needs and investments such as educational investment or future planned needs such as buying land or buying work equipment to support a business that is they are currently developing (Srinivasan, 2011).

In Philippines, apart from the small business credit service program, there are also public housing services for low-income people with a down payment that is subsidized by the government and a down payment of up to 0%. And of course with low interest. Microfinance service programs such as public housing loans, savings, micro and small business capital loans that have been provided by the Philippinesn government is a comprehensive effort in poverty alleviation that needs to be supported by education services that help people become smarter and more rational in making decisions and maximizing the program. to accelerate the poor out of poverty (Ali & Nisar, 2016).

The theory of bank behavior is a derivative of Keynes' money demand theory. Bank behavior theory states that human interaction determines the interest rate in the bank. Public behavior in using banking products can cause banks to become more or less liquid so that every banking product offered has risks. This risk will be detrimental to all aspects involved. Moreover, it will disrupt financial system stability. The theory of bank behavior is a derivative of Keynes's theory of money demand with speculative motives. The speculation motive in the theory of liquidity preference involves information about the need to take anticipatory steps against uncertainty (uncertainty) factors and expectations for the future (Fontana & Setterfield, 2016).

Interest rates are very influential on the macroeconomy starting from economic growth, investment, consumption, and other macroeconomic factors. This causes inflation to become a standard or benchmark commonly used in the macroeconomic analysis (Bofondi, et al., 2011).

Inflation is a macroeconomic factor that affects the efficiency of banking activities. Inflation lowers the value of money, which reduces the general rate of return. The decline in investment had a negative impact on economic performance. The inflation rate is an indicator that is often used to measure the stability of prices for goods and services. Inflation is defined as a continuous increase in the general price level over a certain period.

According to Mankiw (2013), the exchange rate between two countries is the value of each currency when exchanged for one another in trade between countries so that the exchange rate between currencies is formed.

NPL theory relating to bank stability rests on three pillars: (i) information asymmetry, (ii) adverse selection, and (iii) moral hazard theory. The theory cites traditional causes of bad credit loans which translate into banking system instability. Relationships that have a positive or negative influence. A country's NPL ratio can affect the state of a country's financial system. A low NPL ratio indicates the stability of a country's financial system, while a high NPL ratio in a country indicates financial instability in a country due to inefficient management in the banking sector to overcome the risk of bad credit. Macroeconomic risk factors have an impact on the performance of the banking sector (Scardovi, 2015).

3 RESEARCH OBJECTIVE AND METHODOLOGY

Based on the research objectives, namely to determine the effect of bank-specific factors (credit) for Rural Banks and macroeconomic variables (inflation, interest rates, exchange rates) on Non-Performing Loans without ensuring the existence of cause and effect in Philippines using secondary data from January 2015 to January 2015. 2018 in December with the object of all People's Credit Banks in Philippines.

The focus of this research object is Philippines. Data sources come from Bank Philippines, Financial Services Authority, Central Bureau of Statistics.

Then the data is analyzed to determine the effect between variables using the Vector Error Correction Model (VECM). This type of research is a type of quantitative research because this study aims to find results in the form of data in the form of numbers which are used as a means of analyzing information about what you want to know.

The model specification used is the VAR method adopted from the research of Sigh and Sudana (2017). Sigh and Sudana (2017) in their research include the variable Non-Performing Loan (NPL), credit, bank size, ROA, IRL, and CAR as proxies of bank-specific factors. And using the variables GDP, exchange rates, inflation, and interest rates as proxies of macroeconomic variables. Sigh and Sudana (2017) consider that this model can explore the relationship between direct aspects and models that are relevant for the analysis of the effect of macroeconomic variables and bank-specific factors on Non-Performing Loans (NPL). The models used in Sigh and Sudana (2017) are as follows:

Where:
NPL = Non Performing Loan
CDR1 = Credit growth of microfinance institutions
INF2 = Inflation rate
NTR3 = Exchange rate
SBA4 = Interest rate
ui = The term error
$\beta 0$ = Parameter constant / Intercept
$\beta 1$, $\beta 2$, $\beta 3$, = The coefficient of the independent variable is x1, x2, x3

4 RESULTS AND DISCUSSION

The unit root test results as shown in the table below show that all the variables to be estimated at the level are: NPL, credit, inflation, exchange rates and interest rates are not stationary. The variable is declared not stationary at that level when it has a probability of more than 0.05. Whereas in the unit root test at the first different level, all the variables to be estimated do not contain the unit root so they are stationary. All variables in this study are stated to be stationary because they have a probability of less than 0.05.

Table 1: Stationarity Test Results

	Level		First Different	
	Probability	Caption	Probability	Caption
NPL	0.2548	not stationary	0.0000	stationary
CDR	0.8247	not stationary	0.0000	stationary
INF	0.0000	stationary	0.0000	stationary
NTR	0.2548	not stationary	0.0000	stationary
SBA	0.0010	stationary	0.0000	stationary

Information: 5% probability

In the short term, the credit variable has a significant effect on NPL. There is a positive relationship between the variable credit and NPL in the short term. This result causes the credit growth of Bank Pengkreditan Rakyat in the short term to increase so that the NPL, which is an indicator of financial system stability, will increase. This means that the higher the NPL, the instability of the financial system or in other words, the financial system stability will be disrupted. The inflation variable in the short term does not have a significant effect on the NPL level. This is known by looking at the T-statistic value of the inflation variable under the T-table value. This means that if there is an increase in the inflation rate in the short term it will not affect the NPL level. Another macroeconomic variable that does not affect the NPL rate is the exchange rate. In this study, the interest rate variable affects the NPL level. This happens because if the interest rate is increased, the debtor will not be able to pay the installments that he borrowed, causing the NPL level to increase.

Table 2: VECM results

Variable	Coefficient	T-statistics
Long-term		
D(CDR(-1))	0,00011	-4,70396
D(INF(-1))	0,39959	-5,93812
D(NTR(-1))	0,00026	-0,05960
D(SBA(-1))	0,16596	-0,240687
C	-0,048474	
Short-term		
CointEq1	0,20325	-4,36820
D(NPL(-1),2))	0,19307	-2,05044
D(NPL(-2),2))	0,24322	-3,22031
D(CDR(-1),2))	0,00017	0,99419
D(CDR(-2),2))	8,2E-05	1,21928
D(INF(-1),2))	0,32772	-4,99535
D(INF(-2),2))	0,38153	-5,57208
D(NTR(-1),2))	0,00013	-0,76731
D(NTR(-2),2))	0,00019	-0,47660
D(SBA(-1),2))	0,07707	-4,31502
D(SBA(-2),2))	0,09106	-1,15329
C	0,03106	-1,38357

In this study, the results of the regression test indicated that there was a relationship between the credit variable and the NPL variable. Inflation and NPLs have a significant positive relationship in the long run. This means that if there is an increase in the exchange rate by one percent, in the long run, the NPL will increase by 0.39959 percent, while the interest rate variable has a significant effect on the NPL in the long run. There is a positive relationship between interest rates and NPL so that in the long run this variable does not have a significant effect on NPL.

In this study, it can be seen that exchange rate fluctuations are inversely related to the NPL level in 2015-1 to 2018-12. This is because other NPL variables such as credit, inflation, and interest rates in Philippines have increased. In this study, in the 2015-1 to 2018-12 period, various kinds of economic turmoil occurred which caused credit figures, inflation, exchange rates, and interest rates for non-performing loans (NPLs) to fluctuate. So far, at least there are some macroeconomic symptoms that have quite affected the Philippinesn economy which can directly affect the banking sector, particularly rural banks. Several monetary events that occurred in the 2015-1 to 2018-12 period were financial pressures and global political uncertainty related to the global economy. Based on this study, where macroeconomic indicators are measured using inflation, exchange rates, and interest rates, specific factors for rural banks are measured using credit growth, and NPL shows that there is a good long-term and short-term relationship.

The credit variable as an indicator for bank-specific factors which in this study is more devoted to microcredit, namely Rural Banks throughout Philippines have a significant positive effect on the NPL of Bank Pengkreditan Rakyat. An increase in credit caused by public consumption, an increase in public income, or for the productive sector in micro-business development raises the risk of an increase in the level of NPL (bad credit) which will disrupt financial system stability in Philippines. the banking sector itself. The high credit growth of Bank Pengkreditan Rakyat was also accompanied by high quality, where the NPL ratio was able to be maintained up to 0.3%. According to Financial Fervices Authority, this crisis did not really disrupt credit growth; However, credit at rural banks, rural banks, and conventional banks is experiencing a slowdown.

5 Conclusion

The test results of macroeconomic variables and bank-specific factors for Non-Performing Loans (NPLs) in Philippines use VECM. Provides results that the NPL variable provides a positive and significant response to credit increases in the short and long term. This means that high and low credit levels lead to high and low NPL levels.

The inflation variable used as a macroeconomic indicator has different effects on the NPL level in the short and long term. In the short term, the inflation variable is detrimental to the NPL level. This means that the increase in the inflation rate does not affect the NPL level. Meanwhile, in the long term, inflation has a positive and significant effect on the NPL level. That is, an increase in the inflation rate increases the NPL level. Inflation that increases this increase is caused by government policies to increase the price of goods which causes prices to also rise. Then this can affect people's purchasing power so that the business world weakens. Resulting in hampered credit.

The next macroeconomic variable is the exchange rate variable. The exchange rate has a negative and insignificant effect on NPL in the long and short term. This means that depreciation or exchange rate appreciation does not affect credit payments provided by Rural Banks / Non-Performing Credit Rates (NPLs) in the long or short term.

The interest rate variable has a positive and significant effect on the NPL level. This means that the increase in interest rates will also increase the level of long-term and short-term non-performing loans (NPL) in Philippines.

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